

## SEQUENCE LISTING

<110> KWEE, YONG  
KOSAKA, MASAAKI  
KOISHIHARA, YASUO

<120> HM1.24-UTILIZING CANCER VACCINES

<130> 053466-0401

<140> 10/533,104  
<141> 2005-04-28

<150> PCT/JP03/13954  
<151> 2003-10-30

<150> JP 2002-316639  
<151> 2002-10-30

<160> 23

<170> PatentIn Ver. 3.3

<210> 1  
<211> 109  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic DNA comprising leader sequence and HA coding sequence

<400> 1  
aattccacc atggatgga gctgtatcat ccttttttg gtagcaacag ctacagggtgt 60  
ccactcatac ccatacgacg tccccacta cgctggtacc gcggccgcg 109

<210> 2  
<211> 109  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic DNA comprising leader sequence and HA coding sequence

<400> 2  
gatccgcggc cgccgtacca gcgttgtctg ggacgtcgta tgggtatgag tggacacctg 60  
tagctgttgc taccagaag aggtatatac agtccatcc catgggg 109

<210> 3  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic primer

<400> 3  
taaaggtaacc aacagcgagg cctgccc

27

<210> 4  
<211> 28  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic primer

<400> 4  
ctgctgcagt gagatccca gatccata

28

<210> 5  
<211> 396  
<212> DNA  
<213> Homo sapiens

<220>  
<221> CDS  
<222> (1)...(396)

<220>  
<223> Nucleotide sequence of extracellular domain of soluble HM 1.24 antigenic protein

<400> 5  
aac agc gag gcc tgc cgg gac ggc ctt cgg gca gtg atg gag tgt cgc 48  
Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg  
1 5 10 15

aat gtc acc cat ctc ctg caa caa gag ctg acc gag gcc cag aag ggc 96  
Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly  
20 25 30

ttt cag gat gtg gag gcc cag gcc acc tgc aac cac act gtg atg 144  
Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met  
35 40 45

gcc cta atg gct tcc ctg gat gca gag aag gcc caa gga caa aag aaa 192  
Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys  
50 55 60

gtg gag gag ctt gag gga gag atc act aca tta aac cat aag ctt cag 240  
Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln  
65 70 75 80

gac gcg tct gca gag gtg gag cga ctg aga aga gaa aac cag gtc tta 288  
Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu  
85 90 95

agc gtg aga atc gcg gac aag aag tac tac ccc agc tcc cag gac tcc	336
Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser	
100	105
110	
agc tcc gct gcg gcg ccc cag ctg ctg att gtg ctg ctg ggc ctc agc	384
Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser	
115	120
125	
gct ctg ctg cag	396
Ala Leu Leu Gln	
130	
<210> 6	
<211> 30	
<212> DNA	
<213> Artificial Sequence	
<220>	
<223> Description of Artificial Sequence: Synthetic	
primer	
<400> 6	
ataggatcct caagcggagc tggagtcctg	30
<210> 7	
<211> 345	
<212> DNA	
<213> Homo sapiens	
<220>	
<221> CDS	
<222> (1) .. (345)	
<220>	
<223> Nucleotide sequence of extracellular domain of	
C-terminal lacking soluble HM 1.24 antigenic	
protein	
<400> 7	
aac agc gag gcc tgc cgg gac ggc ctt cgg gca gtg atg gag tgt cgc	48
Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg	
1	5
10	15
aat gtc acc cat ctc ctg caa caa gag ctg acc gag gcc cag aag ggc	96
Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly	
20	25
30	
ttt cag gat gtg gag gcc cag gcc acc tgc aac cac act gtg atg	144
Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met	
35	40
45	
gcc cta atg gct tcc ctg gat gca gag aag gcc caa gga caa aag aaa	192
Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys	
50	55
60	

gtg gag gag ctt gag gga gag atc act aca tta aac cat aag ctt cag	240
Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln	
65 70 75 80	

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agc gtg aga atc gcg gac aag aag tac tac ccc agc tcc cag gac tcc 336
Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser
          100           105           110

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agc tcc gct 345  
Ser Ser Ala  
115

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<210> 8
<211> 32
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 8  
ggatcttggt tcattctcaa gcctcagaca gt 32

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<210> 9
<211> 30
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Description of Artificial Sequence: Synthetic  
primer

<400> 9  
cctcagactc ggccctgaccc gtggaaagaa 30

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<210> 10
<211> 429
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Description of Artificial Sequence: Synthetic  
nucleotide sequence coding for a fusion protein  
comprising HA peptide and soluble HM 1.24  
antigenic protein

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(429)

&lt;400&gt; 10

tac cca tac gac gtc cca gac tac gct ggt acc aac agc gag gcc tgc	48
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr Asn Ser Glu Ala Cys	
1 5 10 15	

cgg gac ggc ctt cgg gca gtg atg gag tgt cgc aat gtc acc cat ctc	96
Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr His Leu	
20 25 30	

ctg caa caa gag ctg acc gag gcc cag aag ggc ttt cag gat gtg gag	144
Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu	
35 40 45	

gcc cag gcc gcc acc tgc aac cac act gtg atg gcc cta atg gct tcc	192
Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met Ala Ser	
50 55 60	

ctg gat gca gag aag gcc caa gga caa aag aaa gtg gag gag ctt gag	240
Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Val Glu Glu Leu Glu	
65 70 75 80	

gga gag atc act aca tta aac cat aag ctt cag gac gcg tct gca gag	288
Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu	
85 90 95	

gtg gag cga ctg aga aga gaa aac cag gtc tta agc gtg aga atc gcg	336
Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala	
100 105 110	

gac aag aag tac tac ccc agc tcc cag gac tcc agc tcc gct gcg gcg	384
Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ala Ala Ala	
115 120 125	

ccc cag ctg ctg att gtg ctg ctg ggc ctc agc gct ctg ctg cag	429
Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser Ala Leu Leu Gln	
130 135 140	

&lt;210&gt; 11

&lt;211&gt; 378

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

<223> Description of Artificial Sequence: Synthetic  
nucleotide sequence coding for a fusion protein  
comprising HA peptide and C-terminal lacking  
soluble HM 1.24 antigenic protein

&lt;220&gt;

&lt;221&gt; CDS

&lt;222&gt; (1)..(378)

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<400> 11
tac cca tac gac gtc cca gac tac gct ggt acc aac agc gag gcc tgc 48
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr Asn Ser Glu Ala Cys
   1           5           10          15

cgg gac ggc ctt cgg gca gtg atg gag tgt cgc aat gtc acc cat ctc 96
Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr His Leu
   20          25          30

ctg caa caa gag ctg acc gag gcc cag aag ggc ttt cag gat gtg gag 144
Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu
   35          40          45

gcc cag gcc gcc acc tgc aac cac act gtg atg gcc cta atg gct tcc 192
Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met Ala Ser
   50          55          60

ctg gat gca gag aag gcc caa gga caa aag aaa gtg gag gag ctt gag 240
Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Val Glu Glu Leu Glu
   65          70          75          80

gga gag atc act aca tta aac cat aag ctt cag gac gcg tct gca gag 288
Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu
   85          90          95

gtg gag cga ctg aga aga gaa aac cag gtc tta agc gtg aga atc gcg 336
Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala
  100         105         110

gac aag aag tac tac ccc agc tcc cag gac tcc agc tcc gct 378
Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ser Ala
  115         120         125

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<210> 12  
<211> 379  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
nucleotide sequence coding for L chain V region  
version a of humanized anti-HM 1.24 antibody

<220>  
<221> CDS  
<222> (1) .. (378)

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<220>
<221> sig_peptide
<222> (1)..(57)
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<220>  
<221> mat\_peptide  
<222> (58) .. (378)

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<400> 12
atg gga tgg agc tgt atc atc ctc tcc ttg gta gca aca gct aca ggt 48
Met Gly Trp Ser Cys Ile Ile Leu Ser Leu Val Ala Thr Ala Thr Gly
-15 -10 -5

gtc cac tcc gac atc cag atg acc cag agc cca agc agc ctg agc gcc 96
Val His Ser Asp Ile Gln Met Thr Gln Ser Pro Ser Ser Leu Ser Ala
-1 1 5 10

agc gtg ggt gac aga gtg acc atc acc tgt aag gct agt cag gat gtg 144
Ser Val Gly Asp Arg Val Thr Ile Thr Cys Lys Ala Ser Gln Asp Val
15 20 25

aat act gct gta gcc tgg tac cag cag aag cca gga aag gct cca aag 192
Asn Thr Ala Val Ala Trp Tyr Gln Gln Lys Pro Gly Lys Ala Pro Lys
30 35 40 45

ctg ctg atc tac tcg gca tcc aac cgg tac act ggt gtg cca agc aga 240
Leu Leu Ile Tyr Ser Ala Ser Asn Arg Tyr Thr Gly Val Pro Ser Arg
50 55 60

ttc agc ggt agc ggt agc ggt acc gac ttc acc ttc acc atc agc agc 288
Phe Ser Gly Ser Gly Ser Gly Thr Asp Phe Thr Phe Thr Ile Ser Ser
65 70 75

ctc cag cca gag gac atc gct acc tac tac tgc cag caa cat tat agt 336
Leu Gln Pro Glu Asp Ile Ala Thr Tyr Tyr Cys Gln Gln His Tyr Ser
80 85 90

act cca ttc acg ttc ggc caa ggg acc aag gtt gaa atc aaa c 379
Thr Pro Phe Thr Phe Gly Gln Gly Thr Lys Val Glu Ile Lys
95 100 105

```

```
<210> 13  
<211> 418  
<212> DNA  
<213> Artificial Sequence
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<220>  
<223> Description of Artificial Sequence: Synthetic  
nucleotide sequence coding for H chain V region  
version r of humanized anti-HM 1.24 antibody

<220>  
<221> CDS  
<222> (1) . . (417)

<220>  
<221> sig\_peptide  
<222> (1)..(57)

<220>

<222> (58) .. (417)

<400> 13  
atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt      48  
Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly  
-15    -5  
  
gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag      96  
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys  
-1     1    10  
  
cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc      144  
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe  
15    25  
  
act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt      192  
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu  
30    45  
  
gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt      240  
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser  
50    60  
  
cag aag ttc aag ggc aga gtc acc atg acc gca gac aag tcc acg agc      288  
Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Lys Ser Thr Ser  
65    75  
  
aca gcc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg      336  
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val  
80    90  
  
tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac      384  
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr  
95    105  
  
tgg ggg caa ggg acc acg gtc acc gtc tcc tca g                            418  
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser  
110    120  
  
<210> 14  
<211> 418  
<212> DNA  
<213> Artificial Sequence  
  
<220>  
<223> Description of Artificial Sequence: Synthetic  
nucleotide sequence coding for H chain V region  
version s of humanized anti-HM 1.24 antibody  
  
<220>  
<221> CDS  
<222> (1)..(417)  
  
<220>  
<221> sig\_peptide  
<222> (1)..(57)

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<220>
<221> mat_peptide
<222> (58)..(417)

<400> 14
atg gac tgg acc tgg agg gtc ttc ttc ttg ctg gct gta gct cca ggt      48
Met Asp Trp Thr Trp Arg Val Phe Phe Leu Leu Ala Val Ala Pro Gly
          -15           -10           -5

gct cac tcc cag gtg cag ctg gtg cag tct ggg gct gag gtg aag aag      96
Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys
          -1       1            5             10

cct ggg gcc tca gtg aag gtt tcc tgc aag gca tct gga tac acc ttc      144
Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe
          15          20            25

act ccc tac tgg atg cag tgg gtg cga cag gcc cct gga caa ggg ctt      192
Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu
          30          35            40            45

gag tgg atg gga tct att ttt cct gga gat ggt gat act agg tac agt      240
Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser
          50          55            60

cag aag ttc aag ggc aga gtc acc atc acc gca gac aag tcc acg agc      288
Gln Lys Phe Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser
          65          70            75

aca gcc tac atg gag ctg agc agc ctg aga tct gag gac acg gcc gtg      336
Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val
          80          85            90

tat tac tgt gcg aga gga tta cga cga ggg ggg tac tac ttt gac tac      384
Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr
          95          100           105

tgg ggg caa ggg acc acg gtc acc gtc tcc tca g                      418
Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser
          110         115           120

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<210> 15

<211> 1014

<212> DNA

<213> Homo sapiens

<220>

<223> Nucleotide sequence coding for human HM 1.24  
antigenic protein expressed on cell membrane

<220>

<221> CDS

<222> (23)..(562)

<400> 15  
 gaattcggca cgagggatct gg atg gca tct act tcg tat gac tat tgc aga 52  
 Met Ala Ser Thr Ser Tyr Asp Tyr Cys Arg  
 1 5 10

gtg ccc atg gaa gac ggg gat aag cgc tgt aag ctt ctg ctg ggg ata 100  
 Val Pro Met Glu Asp Gly Asp Lys Arg Cys Lys Leu Leu Leu Gly Ile  
 15 20 25

gga att ctg gtg ctc ctg atc atc gtg att ctg ggg gtg ccc ttg att 148  
 Gly Ile Leu Val Leu Ile Ile Val Ile Leu Gly Val Pro Leu Ile  
 30 35 40

atc ttc acc atc aag gcc aac agc gag gcc tgc cgg gac ggc ctt cgg 196  
 Ile Phe Thr Ile Lys Ala Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg  
 45 50 55

gca gtg atg gag tgt cgc aat gtc acc cat ctc ctg caa caa gag ctg 244  
 Ala Val Met Glu Cys Arg Asn Val Thr His Leu Leu Gln Gln Glu Leu  
 60 65 70

acc gag gcc cag aag ggc ttt cag gat gtg gag gcc cag gcc acc 292  
 Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu Ala Gln Ala Ala Thr  
 75 80 85 90

tgc aac cac act gtg atg gcc cta atg gct tcc ctg gat gca gag aag 340  
 Cys Asn His Thr Val Met Ala Leu Met Ala Ser Leu Asp Ala Glu Lys  
 95 100 105

gcc caa gga caa aag aaa gtg gag gag ctt gag gga gag atc act aca 388  
 Ala Gln Gly Gln Lys Val Glu Glu Leu Glu Gly Glu Ile Thr Thr  
 110 115 120

tta aac cat aag ctt cag gac gcg tct gca gag gtg gag cga ctg aga 436  
 Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu Val Glu Arg Leu Arg  
 125 130 135

aga gaa aac cag gtc tta agc gtg aga atc gcg gac aag aag tac tac 484  
 Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr  
 140 145 150

ccc agc tcc cag gac tcc agc tcc gct gcg gcg ccc cag ctg ctg att 532  
 Pro Ser Ser Gln Asp Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile  
 155 160 165 170

gtg ctg ctg ggc ctc agc gct ctg ctg cag tgagatccca ggaagctggc 582  
 Val Leu Leu Gly Leu Ser Ala Leu Leu Gln  
 175 180

acatcttggaa aggtccgtcc tgctcggtt ttgcgttgaa cattcccttg atctcatcag 642

ttctgagcgg gtcatggggc aacacggta gcggggagag cacgggttag ccggagaagg 702

gcctctggag caggtctgga gggccatgg ggcagtctg ggtgtggga cacagtcggg 762

ttgacccagg gctgtctccc tccagagcct ccctccggac aatgagtccc ccctcttgtc 822

tccccccctg agattggca tggggtgccg tggggggggc atgtgctgcc tgggttatg 882

ggtttttttgcggggggggg ttgtttttt ctggggtctt tgagctccaa aaaaataaac 942  
 acttccttg agggagagca cacctaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaattc 1002  
 gggcgccgc ca 1014

<210> 16  
 <211> 132  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> Amino acid sequence of soluble HM 1.24  
 antigenic protein

<400> 16  
 Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg  
 1 5 10 15  
 Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly  
 20 25 30  
 Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met  
 35 40 45  
 Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys  
 50 55 60  
 Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln  
 65 70 75 80  
 Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu  
 85 90 95  
 Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser  
 100 105 110  
 Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser  
 115 120 125  
 Ala Leu Leu Gln  
 130

<210> 17  
 <211> 115  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <223> Amino acid sequence of extracellular downing of  
 C-terminal lacking soluble HM 1.24 antigenic  
 protein

<400> 17  
Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg  
1               5               10               15  
Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly  
20               25               30  
Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met  
35               40               45  
Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys  
50               55               60  
Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln  
65               70               75               80  
Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu  
85               90               95  
Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser  
100              105              110  
Ser Ser Ala  
115

<210> 18  
<211> 143  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
amino acid sequence of a fusion protein  
comprising HA peptide and soluble HM 1.24  
antigenic protein

<400> 18  
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr Asn Ser Glu Ala Cys  
1               5               10               15  
Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr His Leu  
20               25               30  
Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu  
35               40               45  
Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met Ala Ser  
50               55               60  
Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys Val Glu Glu Leu Glu  
65               70               75               80  
Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu  
85               90               95  
Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala  
100              105              110

Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ser Ala Ala Ala  
115 120 125

Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser Ala Leu Leu Gln  
130 135 140

<210> 19  
<211> 126  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
amino acid sequence of a fusion protein  
comprising HA peptide and C-terminal lacking  
soluble HM 1.24 antigenic protein

<400> 19  
Tyr Pro Tyr Asp Val Pro Asp Tyr Ala Gly Thr Asn Ser Glu Ala Cys  
1 5 10 15

Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg Asn Val Thr His Leu  
20 25 30

Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly Phe Gln Asp Val Glu  
35 40 45

Ala Gln Ala Ala Thr Cys Asn His Thr Val Met Ala Leu Met Ala Ser  
50 55 60

Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys Val Glu Glu Leu Glu  
65 70 75 80

Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln Asp Ala Ser Ala Glu  
85 90 95

Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu Ser Val Arg Ile Ala  
100 105 110

Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser Ser Ser Ala  
115 120 125

<210> 20  
<211> 126  
<212> PRT  
<213> Artificial Sequence

<220>  
<223> Description of Artificial Sequence: Synthetic  
amino acid sequence of L chain V region  
version a of humanized anti-HM 1.24 antibody

<400> 20  
Met Gly Trp Ser Cys Ile Ile Leu Ser Leu Val Ala Thr Ala Thr Gly  
-15 -10 -5

Val	His	Ser	Asp	Ile	Gln	Met	Thr	Gln	Ser	Pro	Ser	Ser	Leu	Ser	Ala
-1							5							10	
Ser	Val	Gly	Asp	Arg	Val	Thr	Ile	Thr	Cys	Lys	Ala	Ser	Gln	Asp	Val
15						20							25		
Asn	Thr	Ala	Val	Ala	Trp	Tyr	Gln	Gln	Lys	Pro	Gly	Lys	Ala	Pro	Lys
30					35					40					45
Leu	Leu	Ile	Tyr	Ser	Ala	Ser	Asn	Arg	Tyr	Thr	Gly	Val	Pro	Ser	Arg
				50					55					60	
Phe	Ser	Gly	Ser	Gly	Ser	Gly	Thr	Asp	Phe	Thr	Phe	Thr	Ile	Ser	Ser
					65			70					75		
Leu	Gln	Pro	Glu	Asp	Ile	Ala	Thr	Tyr	Tyr	Cys	Gln	Gln	His	Tyr	Ser
					80			85					90		
Thr	Pro	Phe	Thr	Phe	Gly	Gln	Gly	Thr	Lys	Val	Glu	Ile	Lys		
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<220>  
<223> Description of Artificial Sequence: Synthetic  
amino acid sequence coding of H chain V region  
version r of humanized anti-HM 1.24 antibody

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Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys  
-1 1 5 10

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe  
15 20 25

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu  
 30                   35                   40                   45

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser  
50 55 60

Gln Lys Phe Lys Gly Arg Val Thr Met Thr Ala Asp Lys Ser Thr Ser  
65 70 75

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val  
80 85 90

Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr  
 95                   100                   105

Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser  
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<210> 22  
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<220>  
<223> Description of Artificial Sequence: Synthetic  
 amino acid sequence of H chain V region  
 version s of humanized anti-HM 1.24 antibody

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Ala His Ser Gln Val Gln Leu Val Gln Ser Gly Ala Glu Val Lys Lys  
       -1        1                    5                    10

Pro Gly Ala Ser Val Lys Val Ser Cys Lys Ala Ser Gly Tyr Thr Phe  
       15                    20                    25

Thr Pro Tyr Trp Met Gln Trp Val Arg Gln Ala Pro Gly Gln Gly Leu  
       30                    35                    40                    45

Glu Trp Met Gly Ser Ile Phe Pro Gly Asp Gly Asp Thr Arg Tyr Ser  
       50                    55                    60

Gln Lys Phe Lys Gly Arg Val Thr Ile Thr Ala Asp Lys Ser Thr Ser  
       65                    70                    75

Thr Ala Tyr Met Glu Leu Ser Ser Leu Arg Ser Glu Asp Thr Ala Val  
       80                    85                    90

Tyr Tyr Cys Ala Arg Gly Leu Arg Arg Gly Gly Tyr Tyr Phe Asp Tyr  
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Trp Gly Gln Gly Thr Thr Val Thr Val Ser Ser  
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<210> 23  
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<223> Amino acid sequence of human HM 1.24  
 antigenic protein expressed on cell membrane

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Asp Lys Arg Cys Lys Leu Leu Leu Gly Ile Gly Ile Leu Val Leu Leu  
       20                    25                    30

Ile Ile Val Ile Leu Gly Val Pro Leu Ile Ile Phe Thr Ile Lys Ala  
35 40 45

Asn Ser Glu Ala Cys Arg Asp Gly Leu Arg Ala Val Met Glu Cys Arg  
50 55 60

Asn Val Thr His Leu Leu Gln Gln Glu Leu Thr Glu Ala Gln Lys Gly  
65 70 75 80

Phe Gln Asp Val Glu Ala Gln Ala Ala Thr Cys Asn His Thr Val Met  
85 90 95

Ala Leu Met Ala Ser Leu Asp Ala Glu Lys Ala Gln Gly Gln Lys Lys  
100 105 110

Val Glu Glu Leu Glu Gly Glu Ile Thr Thr Leu Asn His Lys Leu Gln  
115 120 125

Asp Ala Ser Ala Glu Val Glu Arg Leu Arg Arg Glu Asn Gln Val Leu  
130 135 140

Ser Val Arg Ile Ala Asp Lys Lys Tyr Tyr Pro Ser Ser Gln Asp Ser  
145 150 155 160

Ser Ser Ala Ala Ala Pro Gln Leu Leu Ile Val Leu Leu Gly Leu Ser  
165 170 175

Ala Leu Leu Gln  
180